

THE ASTROPHYSICAL JOURNAL  
CONTENTS OF VOLUME 608, PART 1

2004 JUNE 10, NUMBER 1

	Page
DETECTING POPULATION III STARS THROUGH OBSERVATIONS OF NEAR-INFRARED COSMIC INFRARED BACKGROUND ANISOTROPIES <i>A. Kashlinsky, R. Arendt, Jonathan P. Gardner, John C. Mather, &amp; S. Harvey Moseley</i>	1
FIRST YEAR WILKINSON MICROWAVE ANISOTROPY PROBE OBSERVATIONS: DARK ENERGY INDUCED CORRELATION WITH RADIO SOURCES <i>M. R. Nolta, E. L. Wright, L. Page, C. L. Bennett, M. Halpern, G. Hinshaw, N. Jarosik, A. Kogut, M. Limon, S. S. Meyer, D. N. Spergel, G. S. Tucker, &amp; E. Wollack</i>	10
ON DEPARTURES FROM A POWER LAW IN THE GALAXY CORRELATION FUNCTION <i>Idit Zehavi, David H. Weinberg, Zheng Zheng, Andreas A. Berlind, Joshua A. Frieman, Román Scoccimarro, Ravi K. Sheth, Michael R. Blanton, Max Tegmark, Houjun J. Mo, Neta A. Bahcall, Jon Brinkmann, Scott Burles, Istrán Csabai, Masataka Fukugita, James E. Gunn, Don Q. Lamb, Jon Loveday, Robert H. Lupton, Avery Meiksin, Jeffrey A. Munn, Robert C. Nichol, David Schlegel, Donald P. Schneider, Mark SubbaRao, Alexander S. Szalay, Alan Uomoto, &amp; Donald G. York (for the SDSS Collaboration)</i>	16
THE EFFECTS OF MASSIVE SUBSTRUCTURES ON IMAGE MULTIPLICITIES IN GRAVITATIONAL LENSES <i>J. D. Cohn &amp; C. S. Kochanek</i>	25
THE COUNTERARC TO MS 1512-cB58 AND A COMPANION GALAXY <i>Harry I. Teplitz, Matthew A. Malkan, &amp; Ian S. McLean</i>	36
THE EFFECT OF METALLICITY ON CEPHEID-BASED DISTANCES <i>Shoko Sakai, Laura Ferrarese, Robert C. Kennicutt, Jr., &amp; Abhijit Saha</i>	42
QUASAR FEEDBACK: THE MISSING LINK IN STRUCTURE FORMATION <i>Evan Scannapieco &amp; S. Peng Oh</i>	62
HIGH-REDSHIFT RADIO-QUIET QUASARS: EXPLORING THE PARAMETER SPACE OF ACCRETION MODELS. I. HOT SEMISPERICAL FLOW <i>Małgorzata A. Sobolewska, Aneta Siemiginowska, &amp; Piotr T. Życki</i>	80
ON MULTIWAVELENGTH EMISSION OF LARGE-SCALE QUASAR JETS <i>Lukasz Stawarz, Marek Sikora, Michal Ostrowski, &amp; Mitchell C. Begelman</i>	95
SUPERMASSIVE STARS IN QUASAR DISKS <i>J. Goodman &amp; Jonathan C. Tan</i>	108
DISTRIBUTION OF FARADAY ROTATION MEASURE IN JETS FROM ACTIVE GALACTIC NUCLEI. II. PREDICTION FROM OUR SWEEPING MAGNETIC TWIST MODEL FOR THE WIGGLED PARTS OF ACTIVE GALACTIC NUCLEUS JETS AND TAILS <i>Hiromitsu Kigure, Yutaka Uchida, Masanori Nakamura, Shigenobu Hirose, &amp; Robert Cameron</i>	119
ACTIVE GALACTIC NUCLEUS EMISSION-LINE PROPERTIES VERSUS THE EDDINGTON RATIO <i>Craig Warner, Fred Hamann, &amp; Matthias Dietrich</i>	136
STRUCTURE OF OJ 287 FROM GEODETIC VLBA DATA <i>Claudio E. Tateyama &amp; Kerry A. Kingham</i>	149
HIGH-RESOLUTION X-RAY SPECTROSCOPY OF THE Fe K COMPLEX IN IC 4329A <i>Barry McKernan &amp; Tahir Yaqoob</i>	157
NONTHERMAL HARD X-RAY EMISSION IN GALAXY CLUSTERS OBSERVED WITH THE <i>BeppoSAX</i> PDS <i>J. Nevalainen, T. Oosterbroek, M. Bonamente, &amp; S. Colafrancesco</i>	166
XMM-NEWTON OBSERVATION OF THE MERGING GALAXY CLUSTER A1644 <i>Thomas H. Reiprich, Craig L. Sarazin, Joshua C. Kempner, &amp; Eric Tittley</i>	179
THE FORMATION OF DUST LANES: IMPLICATIONS FOR GALAXY EVOLUTION <i>Julianne J. Dalcanton, Peter Yoachim, &amp; Rebecca A. Bernstein</i>	189
AN X-RAY INVESTIGATION OF THE NGC 346 FIELD IN THE SMALL MAGELLANIC CLOUD. III. XMM-NEWTON DATA <i>Yael Nazé, Jean Manfroid, Ian R. Stevens, Michael F. Corcoran, &amp; Aaron Flores</i>	208

	Page
LOW-MASS PRE-MAIN-SEQUENCE STARS IN THE LARGE MAGELLANIC CLOUD. III. ACCRETION RATES FROM HUBBLE SPACE TELESCOPE WFC2 OBSERVATIONS <i>M. Romaniello, M. Robberto, &amp; N. Panagia</i>	220
PHOTOIONIZED GAS IN DARK MATTER MINIHALOS IN THE GALACTIC HALO AND LOCAL GROUP <i>Orly Gnat &amp; Amiel Sternberg</i>	229
THE LUMINOSITY FUNCTION AND COLOR-MAGNITUDE DIAGRAM OF THE GLOBULAR CLUSTER M12 <i>Jonathan R. Hargis, Eric L. Sandquist, &amp; Michael Bolte</i>	243
RAISING THE DEAD: CLUES TO TYPE Ia SUPERNOVA PHYSICS FROM THE REMNANT 0509-67.5 <i>Jessica S. Warren &amp; John P. Hughes</i>	261
KELVIN-HELMHOLTZ INSTABILITY IN A WEAKLY IONIZED MEDIUM <i>C. Watson, E. G. Zweibel, F. Heitsch, &amp; E. Churchwell</i>	274
THE EFFECTS OF DUST ON COMPACT AND ULTRACOMPACT H II REGIONS <i>S. Jane Arthur, Stanley E. Kurtz, José Franco, &amp; Marna Y. Albarrán</i>	282
GSH 23.0-0.7+117: A NEUTRAL HYDROGEN SHELL IN THE INNER GALAXY <i>J. M. Stil, A. R. Taylor, P. G. Martin, T. A. Rothwell, J. M. Dickey, &amp; N. M. McClure-Griffiths</i>	297
DETECTION OF VIBRATIONALLY EXCITED ETHYL CYANIDE IN THE INTERSTELLAR MEDIUM <i>David M. Mehringer, J. C. Pearson, Jocelyn Keene, &amp; T. G. Phillips</i>	306
THE PRODUCTION OF H I IN PHOTODISASSOCIATION REGIONS AND A COMPARISON WITH CO (1-0) EMISSION <i>Ronald J. Allen, Harold L. Heaton, &amp; Michael J. Kaufman</i>	314
AB INITIO DIRECT TRAJECTORY SIMULATION WITH NONADIABATIC TRANSITIONS OF THE DISSOCIATIVE RECOMBINATION REACTION $\text{HCNH}^+ + e^- \rightarrow \text{HNC}/\text{HCN} + \text{H}$ <i>Tetsuya Taketsugu, Asami Tajima, Keisaku Ishii, &amp; Tsuneo Hirano</i>	323
MASSIVE MOLECULAR OUTFLOWS AT HIGH SPATIAL RESOLUTION <i>H. Beuther, P. Schilke, &amp; F. Gueth</i>	330
PROBING THE EARLY STAGES OF LOW-MASS STAR FORMATION IN LDN 1689N: DUST AND WATER IN IRAS 16293-2422A, B, AND E <i>Ronald Stark, Göran Sandell, Sera C. Beck, Michiel R. Hogerheijde, Ewine F. van Dishoeck, Peter van der Wal, Floris F. S. van der Tak, Frank Schäfer, Gary J. Melnick, Matt L. N. Ashby, &amp; Gert de Lange</i>	341
THE PROPAGATION AND ERUPTION OF RELATIVISTIC JETS FROM THE STELLAR PROGENITORS OF GAMMA-RAY BURSTS <i>Weiqun Zhang, S. E. Woosley, &amp; A. Heger</i>	365
ULTRARELATIVISTIC MAGNETOHYDRODYNAMIC JETS IN THE CONTEXT OF GAMMA-RAY BURSTS <i>Christian Fendt &amp; Rachid Ouyed</i>	378
MAGNETOROTATIONAL EFFECTS ON ANISOTROPIC NEUTRINO EMISSION AND CONVECTION IN CORE-COLLAPSE SUPERNOVAE <i>Kei Kotake, Hidetomo Sawai, Shioichi Yamada, &amp; Katsuhiko Sato</i>	391
EXPLOSIVE YIELDS OF MASSIVE STARS FROM $Z = 0$ TO $Z = Z_\odot$ <i>Alessandro Chieffi &amp; Marco Limongi</i>	405
ON TIME EVOLUTION AND CAUSALITY OF FORCE-FREE BLACK HOLE MAGNETOSPHERES <i>Amir Levinson</i>	411
GAMMA-RAY EMISSION PROPERTIES FROM MATURE PULSARS IN THE GALAXY AND IN THE GOULD BELT <i>K. S. Cheng, L. Zhang, P. Leung, &amp; Z. J. Jiang</i>	418
PRONOUNCED LONG-TERM FLUX VARIABILITY OF THE ANOMALOUS X-RAY PULSAR 1E 1048.1-5937 <i>S. Mereghetti, A. Tiengo, L. Stella, G. L. Israel, N. Rea, S. Zane, &amp; T. Oosterbroek</i>	427
A STRONG, BROAD ABSORPTION FEATURE IN THE X-RAY SPECTRUM OF THE NEARBY NEUTRON STAR RX J1605.3+3249 <i>M. H. van Kerkwijk, D. L. Kaplan, M. Durant, S. R. Kulkarni, &amp; F. Paerels</i>	432
EVOLUTION OF SPECTRAL STATES OF AQUILA X-1 DURING THE 2000 OUTBURST <i>Dipankar Maitra &amp; Charles D. Bailyn</i>	444
ON THE STEADY NATURE OF LINE-DRIVEN DISK WINDS <i>Nicolas A. Pereyra, Stanley P. Owocki, D. John Hillier, &amp; David A. Turnshek</i>	454
NEUTRINO EFFECTS BEFORE, DURING, AND AFTER THE FREEZEOUT OF THE $r$ -PROCESS <i>M. Terasawa, K. Langanke, T. Kajino, G. J. Mathews, &amp; E. Kolbe</i>	470
GROUND-STATE SiO MASER EMISSION TOWARD EVOLVED STARS <i>D. A. Boboltz &amp; M. J. Claussen</i>	480
TYPE I PLANETARY MIGRATION WITH MHD TURBULENCE <i>Gregory Laughlin, Adriane Steinacker, &amp; Fred C. Adams</i>	489

## CONTENTS

v

	Page
DISK TEMPERATURE VARIATIONS AND EFFECTS ON THE SNOW LINE IN THE PRESENCE OF SMALL PROTOPLANETS <i>Hannah Jang-Condell &amp; Dimitar D. Sasselov</i>	497
LINEAR ANALYSIS OF THE MAGNETOROTATIONAL INSTABILITY, INCLUDING AMBIPOLAR DIFFUSION, WITH APPLICATION TO PROTOPLANETARY DISKS <i>S. J. Desch</i>	509
A SUBMILLIMETER SEARCH OF NEARBY YOUNG STARS FOR COLD DUST: DISCOVERY OF DEBRIS DISKS AROUND TWO LOW-MASS STARS <i>Michael C. Liu, Brenda C. Matthews, Jonathan P. Williams, &amp; Paul G. Kalas</i>	526
RECONNECTION OF MAGNETIC FIELD LINES NEAR THE SOLAR SURFACE DURING CORONAL MASS EJECTION PROPAGATION <i>A. A. Reinard &amp; L. A. Fisk</i>	533
PARTICLE ACCELERATION IN AN EVOLVING NETWORK OF UNSTABLE CURRENT SHEETS <i>Loukas Vlahos, Heinz Isliker, &amp; Fabio Lepreti</i>	540
PULSED PARTICLE INJECTION IN A RECONNECTION-DRIVEN DYNAMIC TRAP MODEL IN SOLAR FLARES <i>Markus J. Aschwanden</i>	554
ACTIVITY-RELATED CHANGES IN LOCAL SOLAR ACOUSTIC MODE PARAMETERS FROM MICHELSON DOPPLER IMAGER AND GLOBAL OSCILLATIONS NETWORK GROUP <i>R. Howe, R. W. Komm, F. Hill, D. A. Haber, &amp; B. W. Hindman</i>	562
SENSITIVITY OF ACOUSTIC WAVE TRAVEL TIMES TO SOUND-SPEED PERTURBATIONS IN THE SOLAR INTERIOR <i>A. C. Birch, A. G. Kosovichev, &amp; T. L. Duvall, Jr.</i>	580
OXYGEN/HYDROGEN CHEMISTRY IN THE INNER COMAE OF ACTIVE COMETS <i>Robert J. Glinski, Brian J. Ford, Walter M. Harris, Christopher M. Anderson, &amp; Jeffery P. Morgenthaler</i>	601
ERRATUM: "LOOKING FOR GRAVITY-MODE MULTIPLETS WITH THE GOLF EXPERIMENT ABOARD SOHO" (ApJ, 604, 455 [2004]) <i>S. Turck-Chièze, R. A. Garcia, S. Couvidat, R. K. Ulrich, L. Bertello, F. Varadi, A. G. Kosovichev, A. H. Gabriel, G. Berthomieu, A. S. Brun, I. Lopes, P. Pallé, J. Provost, J. M. Robillot, &amp; T. Roca Cortés</i>	610

2004 JUNE 20, NUMBER 2

REDSHIFTED 21 CENTIMETER EMISSION FROM THE PRE-REIONIZATION ERA. I. MEAN SIGNAL AND LINEAR FLUCTUATIONS <i>Nickolay Y. Gnedin &amp; Peter A. Shaver</i>	611
21 CENTIMETER FLUCTUATIONS FROM COSMIC GAS AT HIGH REDSHIFTS <i>Matias Zaldarriaga, Steven R. Furlanetto, &amp; Lars Hernquist</i>	622
GRAVITATIONAL BINDING, VIRIALIZATION, AND THE PECULIAR VELOCITY DISTRIBUTION OF THE GALAXIES <i>Bernard Leong &amp; William C. Saslaw</i>	636
COSMOLOGICAL DENSITY DISTRIBUTION FUNCTION FROM THE ELLIPSOIDAL COLLAPSE MODEL IN REAL SPACE <i>Yasuhiro Ohta, Issha Kayo, &amp; Atsushi Taruya</i>	647
DENSITY PROFILES OF COLD DARK MATTER SUBSTRUCTURE: IMPLICATIONS FOR THE MISSING-SATELLITES PROBLEM <i>Stelios Kazantzidis, Lucio Mayer, Chiara Mastropietro, Jürg Diemand, Joachim Stadel, &amp; Ben Moore</i>	663
TeV GAMMA-RAY SURVEY OF THE NORTHERN HEMISPHERE SKY USING THE MILAGRO OBSERVATORY <i>R. Atkins, W. Benbow, D. Berley, E. Blaufuss, J. Bussons, D. G. Coyne, T. DeYoung, B. L. Dingus, D. E. Dorfan, R. W. Ellsworth, L. Fleysher, R. Fleysher, G. Gisler, M. M. Gonzalez, J. A. Goodman, T. J. Haines, E. Hays, C. M. Hoffman, L. A. Kelley, C. P. Lansdell, J. T. Linnemann, J. E. McEnery, R. S. Miller, A. I. Mincer, M. F. Morales, P. Nemethy, D. Noyes, J. M. Ryan, F. W. Samuelson, A. Shoup, G. Sinnis, A. J. Smith, G. W. Sullivan, D. A. Williams, S. Westerhoff, M. E. Wilson, X. W. Xu, &amp; G. B. Yodh</i>	680
DETECTING THE ATTENUATION OF BLAZAR GAMMA-RAY EMISSION BY EXTRAGALACTIC BACKGROUND LIGHT WITH THE GAMMA-RAY LARGE AREA SPACE TELESCOPE <i>Andrew Chen, Luis C. Reyes, &amp; Steven Ritz</i>	686
THE GAMMA-RAY BRIGHT BL LACERTAE OBJECT RX J1211+2242 <i>V. Beckmann, P. Favre, F. Tavecchio, T. Bussien, J. Fliri, &amp; A. Wolter</i>	692
A SURVEY OF EXTENDED RADIO JETS WITH CHANDRA AND THE HUBBLE SPACE TELESCOPE <i>Rita M. Sambruna, Jessica K. Gambill, L. Maraschi, F. Tavecchio, R. Cerutti, C. C. Cheung, C. Megan Urry, &amp; G. Chartas</i>	698
THE DIPOLE ANISOTROPY OF THE FIRST ALL-SKY X-RAY CLUSTER SAMPLE <i>Dale D. Kocevski, Christopher R. Mullis, &amp; Harald Ebeling</i>	721

## CONTENTS

	Page
A DEEP <i>CHANDRA</i> OBSERVATION OF THE DISTANT GALAXY CLUSTER MS 1137.5+6625 <span style="float: right;">©</span>	731
<i>Laura Grego, J. M. Vrtilek, Leen Van Speybroeck, Laurence P. David, William Forman, John E. Carlstrom, Erik D. Reese, &amp; Marshall K. Joy</i>	
THE MUNICH NEAR-INFRARED CLUSTER SURVEY (MUNICS). VI. THE STELLAR MASSES OF K-BAND-SELECTED FIELD GALAXIES TO $z \sim 1.2$	742
<i>N. Drory, R. Bender, G. Feulner, U. Hopp, C. Maraston, J. Snigula, &amp; G. J. Hill</i>	
NEARLY 5000 DISTANT EARLY-TYPE GALAXIES IN COMBO-17: A RED SEQUENCE AND ITS EVOLUTION SINCE $z \sim 1$	752
<i>Eric F. Bell, Christian Wolf, Klaus Meisenheimer, Hans-Walter Rix, Andrea Borch, Simon Dye, Martina Kleinheinrich, Lutz Wisotzki, &amp; Daniel H. McIntosh</i>	
EXTENDED TIDAL STRUCTURE IN TWO Ly $\alpha$ -EMITTING STARBURST GALAXIES	768
<i>John M. Cannon, Evan D. Skillman, Daniel Kunth, Claus Leitherer, Miguel Mas-Hesse, Göran Östlin, &amp; Artashes Petrosian</i>	
PROBING THE RED GIANT BRANCH PHASE TRANSITION: NEAR-INFRARED PHOTOMETRY OF SIX INTERMEDIATE-AGE LARGE MAGELLANIC CLOUD CLUSTERS	772
<i>Francesco R. Ferraro, Livia Origlia, Vincenzo Testa, &amp; Claudia Maraston</i>	
A DEEP <i>CHANDRA</i> X-RAY OBSERVATION OF THE RICH YOUNG CLUSTER NGC 6530. I. THE X-RAY SOURCE CATALOG AND THE CLUSTER POPULATION <span style="float: right;">©</span>	781
<i>F. Damiani, E. Flaccomio, G. Micela, S. Sciortino, F. R. Harnden, Jr., &amp; S. S. Murray</i>	
DEEP NEAR-INFRARED OBSERVATIONS OF THE W3 MAIN STAR-FORMING REGION	797
<i>D. K. Ojha, M. Tamura, Y. Nakajima, M. Fukagawa, K. Sugitani, C. Nagashima, T. Nagayama, T. Nagata, S. Sato, A. J. Pickles, &amp; K. Ogura</i>	
THE ENVIRONMENT OF THE OPTICALLY BRIGHTEST HERBIG Ae STAR, HD 104237	809
<i>C. A. Grady, B. Woodgate, Carlos A. O. Torres, Th. Henning, D. Apai, J. Rodmann, Hongchi Wang, B. Stecklum, H. Linz, G. M. Williger, A. Brown, E. Wilkinson, G. M. Harper, G. J. Herczeg, A. Danks, G. L. Vieira, E. Malumuth, N. R. Collins, &amp; R. S. Hill</i>	
PV CEPhei: YOUNG STAR CAUGHT SPEEDING? <span style="float: right;">©</span>	831
<i>Alyssa A. Goodman &amp; Héctor G. Arce</i>	
ABSORPTION IN GAMMA-RAY BURST AFTERGLOWS <span style="float: right;">©</span>	846
<i>G. Stratta, F. Fiore, L. A. Antonelli, L. Piro, &amp; M. De Pasquale</i>	
SEARCH FOR COSMIC-RAY POINT SOURCES WITH KASCADE <span style="float: right;">©</span>	865
<i>T. Antoni, W. D. Apel, A. F. Badea, K. Bekk, A. Bercuci, H. Blümner, H. Bozdog, I. M. Brancus, C. Büttner, K. Daumiller, P. Doll, R. Engel, J. Engler, F. Fessler, H. J. Gils, R. Glassetter, A. Haungs, D. Heck, J. R. Hörandel, K.-H. Kampert, H. O. Klages, G. Maier, H. J. Mathes, H. J. Mayer, J. Milke, M. Müller, R. Obenland, J. Oehlschläger, S. Ostapchenko, M. Petcu, H. Rebel, A. Risse, M. Risse, M. Roth, G. Schatz, H. Schieler, J. Scholz, T. Thöw, H. Ulrich, J. van Buren, A. Vardanyan, A. Weindl, J. Wochele, &amp; J. Zabierowski (The KASCADE Collaboration)</i>	
CHANDRA OBSERVATIONS OF THE X-RAY ENVIRONS OF SN 1998bw/GRB 980425 <span style="float: right;">©</span>	872
<i>C. Kouveliotou, S. E. Woosley, S. K. Patel, A. Levan, R. Blandford, E. Ramirez-Ruiz, R. A. M. J. Wijers, M. C. Weisskopf, A. Tennant, E. Pian, &amp; P. Giommi</i>	
DIRECT NUMERICAL SIMULATIONS OF TYPE Ia SUPERNOVAE FLAMES. II. THE RAYLEIGH-TAYLOR INSTABILITY	883
<i>J. B. Bell, M. S. Day, C. A. Rendleman, S. E. Woosley, &amp; M. Zingale</i>	
NUMERICAL STUDY ON THE ROTATIONAL COLLAPSE OF STRONGLY MAGNETIZED CORES OF MASSIVE STARS	907
<i>Shoichi Yamada &amp; Hidetomo Sawai</i>	
NONLINEAR ELECTRODYNAMICS AND THE SURFACE REDSHIFT OF PULSARS	925
<i>Herman J. Mosquera Cuesta &amp; José M. Salim</i>	
THE EFFECT OF NEUTRON STAR ROTATION ON THE PROPERTIES OF THERMONUCLEAR X-RAY BURSTS	930
<i>Michael P. Muno, Duncan K. Galloway, &amp; Deepo Chakrabarty</i>	
THE EFFECTS OF ROTATION ON THERMAL X-RAY AFTERGLOWS RESULTING FROM PULSAR GLITCHES	935
<i>C. Y. Hui &amp; K. S. Cheng</i>	
NUCLEATION OF QUARK MATTER IN NEUTRON STAR CORES	945
<i>T. Harko, K. S. Cheng, &amp; P. S. Tang</i>	
POSITIONAL UNCERTAINTIES AND DETECTION LIMITS OF <i>ROSAT</i> X-RAY SOURCES <span style="float: right;">©</span>	957
<i>Thomas R. Ayres</i>	
OXYGEN OVERABUNDANCE IN THE EXTREMELY IRON-POOR STAR CS 29498-043 <span style="float: right;">©</span>	971
<i>Wako Aoki, John E. Norris, Sean G. Ryan, Timothy C. Beers, Norbert Christlieb, Stelios Tsangarides, &amp; Hiroyasu Ando</i>	
CONSTRAINING THE X-RAY LUMINOSITIES OF ASYMPTOTIC GIANT BRANCH STARS: TX CAMELOPARDALIS AND T CASSIOPEIA	978
<i>Joel H. Kastner &amp; Noam Soker</i>	
AN INSIGHT INTO THE REACTION RATES OF THE Ne-Na AND Mg-Al CHAINS FROM THE ABUNDANCE ANOMALIES IN GLOBULAR CLUSTER RED GIANTS	983
<i>Masayuki Aikawa, Masayuki Y. Fujimoto, &amp; Kiyoshi Katō</i>	
MASS AND ANGULAR MOMENTUM TRANSFER IN THE MASSIVE ALGOL BINARY RY PERSEI	989
<i>P. Barai, D. R. Gies, E. Choi, V. Das, R. Deo, W. Huang, K. Marshall, M. V. McSwain, C. Oyden, M. A. Osterman, R. L. Riddle, J. L. Seymour, Jr., D. W. Wingert, A. B. Kaye, &amp; G. J. Peters</i>	

## CONTENTS

vii

	Page
THE PHYSICAL PROPERTIES AND EFFECTIVE TEMPERATURE SCALE OF O-TYPE STARS AS A FUNCTION OF METALLICITY. I. A SAMPLE OF 20 STARS IN THE MAGELLANIC CLOUDS <i>Philip Massey, Fabio Bresolin, Rolf P. Kudritzki, Joachim Puls, &amp; A. W. A. Pauldrach</i>	1001
A CNO DICHOTOMY AMONG O2 GIANT SPECTRA IN THE MAGELLANIC CLOUDS <i>Nolan R. Walborn, Nidia I. Morrell, Ian D. Howarth, Paul A. Crowther, Daniel J. Lennon, Philip Massey, &amp; Julia I. Arias</i>	1028
EFFECTS OF HELIUM PHASE SEPARATION ON THE EVOLUTION OF EXTRASOLAR GIANT PLANETS <i>Jonathan J. Fortney &amp; W. B. Hubbard</i>	1039
ON THE EVOLUTION AND STABILITY OF A PROTOPLANETARY DISK DUST LAYER <i>P. Garaud &amp; D. N. C. Lin</i>	1050
THE INTERNAL STRUCTURAL ADJUSTMENT DUE TO TIDAL HEATING OF SHORT-PERIOD INFLATED GIANT PLANETS <i>Pin-Gao Gu, Peter H. Bodenheimer, &amp; Douglas N. C. Lin</i>	1076
USING NOTCH-FILTER MASKS FOR HIGH-CONTRAST IMAGING OF EXTRASOLAR PLANETS <i>John H. Debes, Jian Ge, Marc J. Kuchner, &amp; Michael Ragoosky</i>	1095
ULYSSES OBSERVATIONS OF THE MAGNETIC CONNECTIVITY BETWEEN CORONAL MASS EJECTIONS AND THE SUN <i>Pete Riley, J. T. Gosling, &amp; N. U. Crooker</i>	1100
A COMPARISON OF THE MINIMUM CURRENT CORONA TO A MAGNETOHYDRODYNAMIC SIMULATION OF QUASI-STATIC CORONAL EVOLUTION <i>D. W. Longcope &amp; T. Mayara</i>	1106
FILAMENT OSCILLATIONS AND MORETON WAVES ASSOCIATED WITH EIT WAVES <i>Takenori J. Okamoto, Hidekazu Nakai, Atsushi Keiyama, Noriyuki Narukage, Satoru Ueno, Reizaburo Kitai, Hiroki Kurokawa, &amp; Kazunari Shibata</i>	1124
MODELS FOR SOLAR MAGNETIC LOOPS. III. DYNAMIC MODELS AND CORONAL DIAGNOSTIC SPECTROMETER OBSERVATIONS <i>E. Landi &amp; M. Landini</i>	1133
STATISTICAL PROPERTIES OF SUPERPENUMBRAL WHORLS AROUND SUNSPOTS <i>K. S. Balasubramaniam, Alexei Pevtsov, &amp; Joey Rogers</i>	1148
THE SPECTRUM OF THE SOLAR SUPERGRANULATION: MULTIPLE NONWAVE COMPONENTS <i>Mark P. Rast, Jason P. Lisle, &amp; Juri Toomre</i>	1156
PERSISTENT NORTH-SOUTH ALIGNMENT OF THE SOLAR SUPERGRANULATION <i>Jason P. Lisle, Mark P. Rast, &amp; Juri Toomre</i>	1167
ERRATUM: "ARC STATISTICS IN TRIAXIAL DARK MATTER HALOS: TESTING THE COLLISIONLESS COLD DARK MATTER PARADIGM" (ApJ, 599, 7 [2003]) <i>Masamune Oguri, Jounghun Lee, &amp; Yasushi Suto</i>	1175
INDEX TO VOLUMES 606-608, PARTS 1 AND 2	i



